



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,737	08/25/2003	Arvind D. Patel	11836.0753.NPU500	2299
26722	7590	11/22/2005	EXAMINER	
OSHA LIANG/MI ONE HOUSTON CENTER SUITE 2800 HOUSTON, TX 77010				RICHARD, CHARLES R
		ART UNIT		PAPER NUMBER
		1712		

DATE MAILED: 11/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/647,737	PATEL ET AL.
	Examiner	Art Unit
	C. R. Richard	1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 06 September 2005.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1,3-9,11-17,19 and 20 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1, 3-9, 11-17, 19 and 20 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1, 3-9, 11-17 and 19-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically, these claims as amended have the added clause (some by dependency), "wherein, the polycarboxylic fatty acid is a mixture...", which is in conflict with the earlier limitation allowing the rheology modifier to be a dimer, trimer or tetramer polycarboxylic fatty acid (or a mixture of these) as well as a polyamide. Does the added limitation refer to a situation that may apply when the modifier is a mixture of the acids including a trimer, all the time, or something else? For purposes of examination on the merits, the first, broadest interpretation will be used.

In addition, there is insufficient antecedent basis for this limitation in these claims ("the polycarboxylic acid is a mixture ..."). Multiple polycarboxylic acids are recited previously.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 3-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Reddie et al. in US Patent 2,994,660. Reddie teaches a water-in-oil (invert) emulsion type drilling fluid (see column 1, lines 9-11). This fluid is formed using a polybasic fatty acid polymer and a polyamine and/or polyamino alcohol emulsifier and exhibits (according to the reference) “excellent rheological properties” (see column 2, lines 53-62).

The water phase may be made up using fresh water, water with various contaminants (such as oil field brine) or even sea water (see column 4, lines 20-32). The oil phase may be made up using either refined or crude oils or other hydrophobic inert fluids; it is stated that refined oils such as diesel oil or fuel oil are preferable (see column 5, lines 18-29). The water content of the combined oil and water phases is stated at being preferably between about 20 and 65 volume percent, but can be varied to about 10 to 75 volume percent (see column 4, lines 50-55) with the balance by volume being the oil (see column 5, lines 42-46) – the corresponding oil ranges being then about 35 to 80 volume percent and 25 to 90 volume percent.

The polybasic fatty acid may be a dimer or trimer of an unsaturated C12 to C24 fatty acid or mixtures of these dimers and trimers; examples of the C12 to C24 acids employed are (the C18) oleic, linoleic and linolenic acids (see column 6, lines 15-30). Generally, at least 2.5 and up to 30 pounds per barrel, preferably, 10 to 20 pounds per barrel of the fatty acid polymer is employed on the basis of finished, unweighted emulsion (see column 9, lines 66-70).

Also, 1 to 15 pounds per barrel of clay (especially bentonite) or a weighting material may be added (see column 5, lines 60-63). Barite may be used for weighting (see Example VI).

5. Claims 1, 3-6, 9, 11-14, 17 and 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated by the disclosures in WO 89/11516. This document discloses an invert emulsion mud containing an emulsifier that may include a polyamide, a dimer acid and a solvent (see pages 2 to 3). The starting materials for the dimer acid are preferably C12 to C22 alkenyl monomeric fatty acids, such as (the C18) oleic and linoleic acids (see page 10). One particular fluid disclosed comprises 1-5 weight % of this emulsifier, 40-97 weight % hydrocarbon drilling oil (such as diesel oil) and 2-60 weight % brine (see page 4); note that given the density ranges of the materials involved, this fluid when viewed on the basis of the volume percentages of its components would be well within the limitations called out in claims 3-4, 11-12 and 19-20. It is further disclosed that such a fluid may contain viscosifiers (like oleophilic bentonites) and weighting agents (like barytes) (see page 4).

6. Claims 1, 3-7, 9, 11-15, 17 and 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Coates et al. in US Patent 4,941,983. Coates discloses a fluid loss additive for use in an invert emulsion mud; this additive may contain an oil, an amide-amine, and a dimer and/or trimer fatty acid (see column 2, lines 8-46). Starting materials for the dimer and trimer acids are C12 to C22 alkenyl monomeric fatty acids such as (the C18) oleic and linoleic acids (see column 2, line 66 to column 3, line 7). The amide-amine may be made by reacting one mole of diethylene triamine with 1 or 2 moles of C1 to C22 alkanoic acid or one mole triethylene tetraamine with 1 to 3 moles of C1 to C22 alkanoic acid with one specific example being diethylene triamine bis-oleamide (see column 3, lines 46-55 and Example 2); note that according to the dictionary consulted by the Examiner, the term poly means "more than one", so a diamide or triamide can be termed a polyamide. The mud in which the additive is incorporated may contain an oleophilic clay and barites for weighting (see Example 1).

Given the range of densities of the materials involved, Example 2 discloses compositions that meet the volumetric and other limitations of these claims. Also, note the disclosure of water as the dispersed phase being from a small amount up to 40% of the inversion mud at column 2, lines 8-15, and that the oil may be diesel as given in Example 2, and also indicated as such at column 6, lines 45-50.

As to claims 7 and 15 in particular, if one takes ratios of 1:1 throughout (as is allowed), the disclosure of column 6, lines 51-62 translates into a polyamide

concentration of 0.125 to 2.5 pounds per barrel and more preferably 0.25 to 1.25 pounds per barrel for the polyamide in a drilling fluid.

7. Claims 1 and 3-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Foley in US Patent 3,728,277. Foley discloses a water-in-oil emulsion composition suitable for use as a drilling mud (see column 1). The composition includes an imidazoline salt of a long chain fatty acid as well as a long chain aliphatic amido amine salt of a long chain aliphatic carboxylic acid (see column 1, line 72 to column 2, line 2 and column 3, lines 56-58).

The amido amine salt may be prepared by reacting a polyamine, such as diethylene triamine or triethylene tetramine with a C8 to C22 aliphatic monocarboxylic acid, especially a C12 to C18 acid as from tall oil, so as to form an amide condensation product (see column 3, line 69 to column 4, line 12). Foley gives method of preparation of the amide where the ratio of acid to amine reactants is about 2:1, and notes that substantially only primary amino groups will react (see column 4, lines 13- 21). Following the formation of the amide, excess carboxylic acid is added in proportion to the secondary amine groups present, thus forming the salt (see column 4, lines 25-31).

Note that this disclosure does allow for reaction of some secondary amino groups and formation of a triamide at times. In any case, a diamide can be regarded as a polyamide - the dictionary consulted by the Examiner gave the definition of "poly" as "more than one". Further, the polyamide of the present invention is described in the rejected claims as a condensation product of a C12 to C22 fatty acid and a polyamine;

there is no mention that all amino groups must react. The addition of the excess acid can be regarded as addition of an emulsifier; Applicant effectively concedes this in listing fatty acids as possible emulsifiers on page 6, lines 6-9 of the specification. None of this is inconsistent with Applicants' specification.

The water-in-oil emulsions of Foley contain water or an aqueous electrolyte solution as the dispersed phase and an oleaginous material as the continuous phase (see column 4, lines 43-50). The aqueous dispersed phase may contain as much as 30% by weight inorganic salts of alkali or alkali earth metals (see column 4, lines 63-66). The oleaginous material may be chosen from a group including esters, ethers and mineral oils (see column 4, line 73 to column 5, line 9), as well as diesel fuel (see Example VIII (E)).

Given the densities of the materials involved, the disclosure on percentages of column 4, lines 43-57 and the rest of what has been pointed out here from Foley describes a composition meeting the volumetric and other limitations of these claims.

'Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 9, 11-14 and 17, 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reddie et al. in US Patent 2,994,660 in view of the disclosures in WO 89/11516. The relevant disclosures of Reddie have been discussed previously. Reddie did not specifically disclose the use of an organophilic clay.

The use of an organophilic clay as a drilling fluid additive is well known in the art. Applicant admits this at page 8, lines 11-15 of the specification. This can also be gleaned from WO 89/11516 as explained in detail previously (based on the disclosure on pages 2 to 4 of this reference).

Thus, one of ordinary skill in the art would have been motivated to add an organophilic clay to the compositions disclosed in Reddie resulting in the fluids of the rejected claims.

10. Claims 1, 7-9 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foley in US Patent 3,728,277 in view of Reddie et al. in US Patent 2,994,660 and WO 89/11516. The disclosures of Foley, Reddie and the WO document

have been discussed in detail above. Foley does not disclose the exact concentration of the polyamide in claims 7 and 15, make a direct disclosure of the limitation (1:3 exact mole proportion) of claims 8 and 16, nor disclose use of the clay of claims 15-16.

The concentration range called out in claims 7 and 15 would have been at least obvious to one of ordinary skill in the art from the disclosures of Foley itself (see the ranges in claim 1 of Foley especially). Further, one of ordinary skill in the art knowing the disclosures of Foley would have been motivated to perform the routine work required to come up with the claimed concentration range limitation in order to optimize the stability of the water-in-oil emulsions in question, in any case; this is particularly true considering that a starting point could have been found in Reddie relating to the corresponding amount of polycarboxylic acid used in Reddie in a similar context (see column 9, lines 66-70 in Reddie).

The exact proportion of claims 8 and 16 would also have been (at least) obvious to one of ordinary skill in the art. As eluded to in a previous rejection, a small portion of the amide produced in Foley would have been a triamide, and Foley does disclose the use of diethylenetriamine and a C18 fatty acid (see column 3, line 69 to column 4, line 21).

It is also of note that claims 8 and 16 is actually written in product by process form making only a comparison of resulting compounds necessary for purposes of examination. That is, the process of a product by process claim does not in itself distinguish its product for purposes of patentability and insufficient evidence has been presented by Applicant to show otherwise. As the Federal circuit has explained:

[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.

[Applicant] argues that even if the performance of a compound is comparable to that of the prior art, this fact does not necessarily imply that the structures are identical. We agree. We also agree that on the entirety of the record the PTO had correctly adduced a *prima facie* case, and that the burden had shifted to [Applicant], "to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product." *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985) (*internal citations omitted*.)

Foley teaches the same triamide that would result from the reaction/proportion set forth in claims 8 and 16.

The use of an organophilic clay as in claims 15 and 16 as a drilling fluid additive would have been obvious to one of ordinary skill in the art, given how well known this is in the art. Applicant admits this as well known at page 8, lines 11-15 of the specification. This can also be gleaned from WO 89/11516 as explained in detail previously (based on the disclosure on pages 2 to 4 of this reference).

Response to Arguments

11. Applicant's arguments filed September 6, 2005 have been fully considered but they are not persuasive. Before responding to the arguments regarding the rejections on the merits, the Examiner notes several relevant items.

First, the Examiner acknowledges Applicant's Request for Extension of Time to Reply filed September 6, 2005. It appears in order.

Second, the Examiner acknowledges that the amendments to the specification and Abstract requested September 6, 2005 have been received and entered. These amendments appear proper.

Third, the Examiner acknowledges that Applicant has requested amendments to claims 1, 3, 4, 6, 9, 11, 12, 17, 19 and 20, as well as the cancellation of claims 2, 10 and 18. These amendments have been entered. Issues with these claim amendments have been taken up above.

Fourth, Applicant's claim amendments are sufficient to handle objections made in the previous office action as to claims 3, 11 (not 9 as Applicant recites) and 19, as well as that to claim 6. These objections are hereby withdrawn.

Fifth, Applicant's claims amendments are sufficient to overcome the rejections under 35 USC 112 as to claims 9-16. These rejections are withdrawn; however, the amendments have resulted in new bases for rejections for all remaining claims under 35 USC 112 (and as to claims 15-16, under 102(b) and/or 103(a)) as seen above.

Moving on to the rejections on the merits from the previous Office Action, Applicant seems to be under some misconception as to what enablement means in the context of a reference cited in a rejection, as well as how a Markush group is interpreted in making a rejection.

It is not a requirement that a reference always give a specific example of a particular combination of limitations to be enabling for that combination, and Applicant has not recited any authority that contradicts this statement. The Examiner points out that the standard may be gleaned from the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same ... (emphasis added).

Of course, for the reference to be enabling, the skilled artisan would have to be able to make (and select the components of) and use the embodiment in question without "undue experimentation".

As to the Markush group issue, it is only necessary that a 102 reference teach all the limitations of a single embodiment of the claim in question. It is not necessary that the reference teach the entire scope of such a claim. When a Markush group is present in a claim, the reference teaches the limitation corresponding if it teaches any species in the group; it does not have to teach all of them. Here, Applicant's amendment to bring in the limitations of original claim 2 to the other claims left the original elements of the rheology modifier Markush group intact; thus a reference teaching one of the original Markush species would teach this Markush limitation for rejection purposes.

In the case of the 35 USC 102(b) rejection over Reddie, Applicant's amendment does not result in a traversal. The reference teaches that there may be as much as 80 and even 90 volume percent oil - see above. It is not necessary that Reddie disclose the limitation as to the mixture of acids (even though it arguably does so at least indirectly), since the reference teaches dimer or trimer acids of the right type may be used. All the other limitations of the rejected claims as amended are also taught by Reddie in a context that one skilled in the art would clearly find enabling. Applicant has not given a legitimate reason otherwise. The rejection is maintained.

Applicant has not directly responded to the other rejections under 35 USC 102(b), but appears to have taken the position that the other rejections would fall similarly to Reddie. Applicant is incorrect in this, as shown in the following.

As to the 102(b) rejection over WO 89/11516, this reference teaches that the oil may be up to 97 weight percent which would be in the 70 to (less than) 100 volume percent range, with a polyamide or dimer of the right type included. All the other limitations are taught appropriately. The rejection is maintained.

As to the 102(b) rejection over Coates, the rejection is maintained similarly, at least via Example 2 of this reference – this rejection has been expanded to include claim 15 as amended.

As to the 102(b) rejection over Foley, the rejection is maintained similarly, given the teaching as to polyamide and percentages of oil in column 4.

In the case of the 35 USC 103(a) rejection over Reddie and WO 89/11516, Applicant's argument as to the trimer concentration is not relevant as other members of the Markush group are taught. As was explained in the earlier office action, the WO reference teaches the use of the clay as a viscosifier in the same context of an invert emulsion mud; use of such a clay is so well known as to be notorious in any case (see admission in specification as cited above). The rejection is maintained.

In the case of the 103(a) rejection over Foley and Reddie. Applicant's argument concerning the Examiner's assertion of claim 7 being obvious via routine optimization is not an argument at all. Simply saying the Examiner is wrong is no answer to the Examiner's reasonable assertion. The Examiner points out that one of ordinary skill in

the art would have to select some amount of polyamide to use, and 0.1 to 5.0 pounds per barrel would be a very likely starting range. Also, see claim 1 of Foley for a more direct teaching.

As to the issues involving claim 8, Applicant may be quoting the case law here correctly, but has failed to apply it or show how it applies here. The Examiner explained in the previous rejection as to how some amount of the correct polyamide would be produced according to the references cited which is all that is required, since Applicant has insufficient limitations (ratios, exclusion of some species, etc) in the claims to assert otherwise. The rejection is maintained. Note this rejection has been expanded to include the WO reference and amended claims 15-16 – see above.

On a related note, the Examiner points out that claims 7-8 and 15-16 could be interpreted as reciting mere limitations on one species of Markush groups, as there no recitation that the “rheology modifier” is limited to anything other than the Markush group in the independent claims corresponding, making Applicant’s argument here effectively irrelevant. The Examiner believes that this is not what Applicant intended, and interprets the claim accordingly, but recommends that Applicant rewrite these claims so as to clarify this point.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See

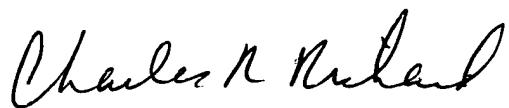
MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to C. R. Richard whose telephone number is 571-272-8502. The examiner can normally be reached on M-Th, 8am-6pm and alternate Fridays, 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



PHILIP TUCKER
PRIMARY EXAMINER
ART UNIT 1712